

What is claimed is:

1. A composition comprising a polymer and an inclusion complex, wherein the inclusion complex comprises an acylated cyclodextrin host molecule and a guest molecule.
2. A composite comprising the composition of claim 1.
3. A shaped article comprising the composition of claim 1.
4. The composition of claim 1, wherein the polymer comprises one or more polyolefin, aromatic polyester, vinyl polymer, acrylic polymer, polynitrile, polyamide, aliphatic polyester, aromatic-aliphatic copolyester, C1-C10 ester of cellulose, polystyrene, polycarbonate, polylactate, polyanhydride, polyglycol, polysaccharide, polyhydroxybutyrate, polyhydroxybutyrate-valerate copolymer, polycaprolactone, or cellophane.
5. The composition of claim 1, wherein the polymer comprises one or more polyethylene, polypropylene, polyethylene-propylene copolymer, polyethylene-vinyl acetate copolymer, polyethylene-vinyl alcohol copolymer; polytetrafluoroethylene, starch, cellulose, cellulose acetate, cellulose acetate propionate, cellulose acetate butyrate, cellulose propionate, cellulose butyrate, polylactic acid, polylactic acid-glycolic acid copolymer, polylactic acid-succinic acid copolymer, polyanhydride, polyvinyl chloride, or polystyrene.
6. The composition of claim 1, wherein the inclusion complex comprises from about 0.1 % (wt.) to about 60 % (wt.) of the composition.
7. The composition of claim 1, wherein the inclusion complex comprises from about 5 % (wt.) to about 25 % (wt.) of the composition.

8. The composition of claim 1, wherein the acylated cyclodextrin host molecule comprises one or more acyl groups containing from about 1 to about 18 carbon atoms.
9. The composition of claim 1, wherein the acylated cyclodextrin host molecule comprises one or more acyl groups containing from about 1 to about 4 carbon atoms.
10. The composition of claim 1, wherein the acylated cyclodextrin host molecule comprises an acylated α -cyclodextrin, a β -cyclodextrin, or a γ -cyclodextrin.
11. The composition of claim 1, wherein the acylated cyclodextrin host molecule is about 80 % (wt.) to about 100 % (wt.) substituted.
12. The composition of claim 1, wherein the acylated cyclodextrin host molecule is about 90 % (wt.) to about 100 % (wt.) substituted.
13. The composition of claim 1, wherein the guest molecule comprises from about 2 % (wt.) to about 15 % (wt.) of the inclusion complex.
14. The composition of claim 1, wherein the guest molecule comprises from about 5 % (wt.) to about 12 % (wt.) of the inclusion complex.
15. The composition of claim 1, wherein the guest molecule comprises one or more pharmaceutical actives, fragrances, nutraceuticals, plasticizers, or insecticides.
16. The composition of claim 1, wherein the guest molecule comprises a water soluble pharmaceutical active or a significantly water soluble pharmaceutical active.

17. The composition of claim 1, wherein the guest molecule comprises a non-water soluble or sparingly water soluble pharmaceutical active.
18. The composition of claim 1, wherein the guest molecule comprises one or more fragrance molecules.
19. The composition of claim 1, wherein the guest molecule comprises one or more nonsteroidal antirheumatic agents, steroids, cardiac glycosides, anticoagulants, benzodiazepine derivatives, benzimidazole derivatives, piperidine derivatives, piperazine derivatives, imidazole derivatives, triazole derivatives, organic nitrates, prostaglandins, and oligionucleotide antisense agents.
20. The composition of claim 1, wherein the guest molecule comprises one or more anti-inflammatory and analgesic agents, anticoagulants, antidiabetic agents, antivirals, antistroke agents, vasodilators, anticancer agents, antidepressants, antifungal agents and antibacterial agents.
21. The composition of claim 1, wherein the composition further comprises one or more plasticizers, thermal stability agents, disintegration agents, absorption agents, or permeability agents.
22. The composition of claim 1, wherein the composition further comprises one or more fatty acids, thioglycolates, fatty acid alcohol ester, surfactants, viscosity modifiers, antioxidants, preservatives, or inert fillers.
23. A method of making the composition of claim 1, wherein the method comprises:
 - a) contacting the polymer, the acylated cyclodextrin host molecule and the guest molecule to form a polymer/inclusion complex mixture; and
 - b) precipitating the mixture in an aqueous medium.

24. A method of making the composition of claim 1, wherein the method comprises:
- a) contacting the polymer, the acylated cyclodextrin host molecule and the guest molecule to form a mixture; and
 - b) melt compounding the mixture to form the composition comprising the polymer and the inclusion complex.
25. A method of making the composition of claim 1, wherein the method comprises:
- a) contacting the acylated cyclodextrin host molecule and the guest molecule to form an inclusion complex;
 - b) precipitating the inclusion complex in an aqueous medium;
 - c) purifying the inclusion complex to substantially remove the water and any organic solvent;
 - d) contacting the polymer with the purified inclusion complex to form a mixture; and
 - e) melt compounding the mixture to form the composition comprising the polymer and the inclusion complex.
26. A medical device comprising a composition comprising a polymer and an inclusion complex, wherein the inclusion complex comprises an acylated cyclodextrin host molecule and a pharmaceutical active guest molecule.
27. The medical device of claim 26, wherein the medical device is a stent, a catheter, or a transdermal drug delivery patch.
28. The medical device of claim 26, wherein the polymer comprises one or more polyolefin, aromatic polyester, vinyl polymer, acrylic polymer, polynitrile, polyamide, aliphatic polyester, aromatic-aliphatic copolyester, C1-C10 ester of cellulose, polystyrene, polycarbonate, polylactate, polyanhydride, polyglycol,

polysaccharide, polyhydroxybutyrate, polyhydroxybutyrate-valerate copolymer, polycaprolactone, or cellophane.

29. The medical device of claim 26, wherein the polymer comprises one or more polyethylene, polypropylene, polyethylene-propylene copolymer, polyethylene-vinyl acetate copolymer, polyethylene-vinyl alcohol copolymer, polytetrafluoroethylene, starch, cellulose, cellulose acetate, cellulose acetate propionate, cellulose acetate butyrate, cellulose propionate, cellulose butyrate, polylactic acid, polylactic acid-glycolic acid copolymer, polylactic acid-succinic acid copolymer, polyanhydride, polyvinyl chloride, or polystyrene.
30. The medical device of claim 26, wherein the inclusion complex comprises from about 0.1 % (wt.) to about 60 % (wt.) of the composition.
31. The medical device of claim 26, wherein the inclusion complex comprises from about 5 % (wt.) to about 25 % (wt.) of the composition.
32. The medical device of claim 26, wherein the acylated cyclodextrin host molecule comprises one or more acyl groups containing from about 1 to about 18 carbon atoms.
33. The medical device of claim 26, wherein the acylated cyclodextrin host molecule comprises one or more acyl groups containing from about 1 to about 4 carbon atoms.
34. The medical device of claim 26, wherein the acylated cyclodextrin host molecule comprises an acylated α -cyclodextrin, a β -cyclodextrin, or a γ -cyclodextrin.
35. The medical device of claim 26, wherein the acylated cyclodextrin host molecule is about 80 % (wt.) to about 100 % (wt.) substituted.

- 36. The medical device of claim 26, wherein the acylated cyclodextrin host molecule is about 90 % (wt.) to about 100 % (wt.) substituted.
- 37. The medical device of claim 26, wherein the pharmaceutical active guest molecule comprises from about 2 % (wt.) to about 15 % (wt.) of the inclusion complex.
- 38. The medical device of claim 26, wherein the pharmaceutical active guest molecule comprises from about 5 % (wt.) to about 12 % (wt.) of the inclusion complex.
- 39. The medical device of claim 26, wherein the pharmaceutical active guest molecule comprises one or more nonsteroidal antirheumatic agents, steroids, cardiac glycosides, anticoagulants, benzodiazepine derivatives, benzimidazole derivatives, piperidine derivatives, piperazine derivatives, imidazole derivatives, triazole derivatives, organic nitrates, prostaglandins, and oligonucleotide antisense agents.
- 40. The medical device of claim 26, wherein the pharmaceutical active guest molecule comprises one or more anti-inflammatory and analgesic agents, anticoagulants, antidiabetic agents, antivirals, antistroke agents, vasodilators, anticancer agents, antibiotics, antidepressants, antifungal agents and antibacterial agents.
- 41. The medical device of claim 26, wherein the composition further comprises one or more plasticizers, thermal stability agents, absorption agents, or permeability agents.

42. The medical device of claim 26, wherein the composition further comprises one or more fatty acids, thioglycolates, fatty acid alcohol esters, surfactants, viscosity modifiers, antioxidants, preservatives, or inert fillers.
43. A solid pharmaceutical composition comprising a polymer and an inclusion complex, wherein the inclusion complex comprises an acylated cyclodextrin and a pharmaceutical active guest molecule.
44. The solid pharmaceutical composition of claim 43, wherein the composition is a tablet.
45. The solid pharmaceutical composition of claim 43, wherein the polymer comprises one or more polyolefin, aromatic polyester, vinyl polymer, acrylic polymer, polynitrile, polyamide, aliphatic polyester, aromatic-aliphatic copolyester, C1-C10 ester of cellulose, polystyrene, polycarbonate, polylactate, polyanhydride, polyglycol, polysaccharide, polyhydroxybutyrate, polyhydroxybutyrate-valerate copolymer, polycaprolactone, or cellophane.
46. The solid pharmaceutical composition of claim 43, wherein the polymer comprises one or more polyethylene, polypropylene, polyethylene-propylene copolymer, polyethylene-vinyl acetate copolymer, polyethylene-vinyl alcohol copolymer, polytetrafluoroethylene, starch, cellulose, cellulose acetate, cellulose acetate propionate, cellulose acetate butyrate, cellulose propionate, cellulose butyrate, polylactic acid, polylactic acid-glycolic acid copolymer, polylactic acid-succinic acid copolymer, polyanhydride, polyvinyl chloride, or polystyrene.
47. The solid pharmaceutical composition of claim 43, wherein the inclusion complex comprises from about 0.1 % (wt.) to about 60 % (wt.) of the composition.

48. The solid pharmaceutical composition of claim 43, wherein the inclusion complex comprises from about 5 % (wt.) to about 25 % (wt.) of the composition.
49. The solid pharmaceutical composition of claim 43, wherein the acylated cyclodextrin host molecule comprises one or more acyl groups containing from about 1 to about 18 carbon atoms.
50. The solid pharmaceutical composition of claim 43, wherein the acylated cyclodextrin host molecule comprises one or more acyl groups containing from about 1 to about 4 carbon atoms.
51. The solid pharmaceutical composition of claim 43, wherein the acylated cyclodextrin host molecule comprises an acylated α -cyclodextrin, a β -cyclodextrin, or a γ -cyclodextrin.
52. The solid pharmaceutical composition of claim 43, wherein the acylated cyclodextrin host molecule is about 80 % (wt.) to about 100 % (wt.) substituted.
53. The solid pharmaceutical composition of claim 43, wherein the acylated cyclodextrin host molecule is about 90 % (wt.) to about 100 % (wt.) substituted.
54. The solid pharmaceutical composition of claim 43, wherein the pharmaceutical active guest molecule comprises from about 2 % (wt.) to about 15 % (wt.) of the inclusion complex.
55. The solid pharmaceutical composition of claim 43, wherein the guest molecule comprises from about 5 % (wt.) to about 12 % (wt.) of the inclusion complex.
56. The solid pharmaceutical composition of claim 43, wherein the pharmaceutical active guest molecule comprises one or more nonsteroidal antirheumatic agents,

steroids, cardiac glycosides, anticoagulants, benzodiazepine derivatives, benzimidazole derivatives, piperidine derivatives, piperazine derivatives, imidazole derivatives, triazole derivatives, organic nitrates, prostaglandins, and oligionucleotide antisense agents.

57. The solid pharmaceutical composition of claim 43, wherein the pharmaceutical active guest molecule comprises one or more anti-inflammatory and analgesic agents, anticoagulants, antidiabetic agents, antivirals, antistroke agents, vasodilators, anticancer agents, antibiotics, antidepressants, antifungal agents and antibacterial agents.
58. The solid pharmaceutical composition of claim 43, wherein the composition further comprises one or more plasticizers, thermal stability agents, disintegration agents, absorption agents, or permeability agents.
59. The solid pharmaceutical composition of claim 43, wherein the composition further comprises one or more fatty acids, thioglycolates, fatty acid alcohol esters, surfactants, viscosity modifiers, antioxidants, preservatives, or inert fillers.